

IPA-ITIS Preparation Notes - Part 1

1. Introduction to Computer Hardware

Computer hardware refers to the physical parts of a computer system: CPU, RAM, Hard Drive, motherboard, power supply, input/output devices (keyboard, mouse, monitor). Hardware interacts with software to perform operations.

2. Understanding Software & Operating System

Software is a set of instructions that tell the hardware what to do. It includes application software (MS Word, browsers) and system software (Operating Systems). The OS manages hardware and software resources.

3. Introduction to Operating Systems

An Operating System (OS) is the backbone of a computer system. It manages hardware, runs applications, handles user interaction, and ensures smooth task execution.

4. Functions of Operating System

The OS performs essential functions like process management, memory management, file system handling, device control, and security enforcement.

5. Types of Operating Systems

There are various types of OS:

- Batch OS (no user interaction)
- Time-Sharing OS (multi-user)
- Distributed OS (multiple systems)
- Real-Time OS (critical time-based tasks)
- Network OS (server-based systems)

6. Architecture of OS (Monolithic & Microkernel)

- Monolithic Kernel: All OS services run in one space (Linux).
- Microkernel: Minimal core functions, services run in user space (Windows NT).

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7. TCP/IP Model vs OSI Model

OSI Model has 7 layers: Application, Presentation, Session, Transport, Network, Data Link, Physical.

TCP/IP Model has 4 layers: Application, Transport, Internet, Network Access.

Both help in understanding how data travels in a network.